PEDESTAL APPARATUS, SYSTEM, AND METHOD

FIELD OF THE DISCLOSURE

[0001] The present disclosure relates generally to pedestals, and more particularly to a pedestal which includes an electric interface to provide electrical power, data, and communication.

BRIEF DESCRIPTION OF THE DRAWINGS

[0002] By way of example, a specific embodiment of the disclosed device will now be described, with reference to the accompanying drawings, in which:

[0003] **FIG. 1** is an isometric view of a pedestal according to the disclosure with a housing in a first position;

[0004] **FIG. 2** is an isometric view of a pedestal of **FIG. 1** with the housing in a second position;

[0005] **FIG. 3** is a close-up view of a portion of the pedestal of **FIG. 2**;

[0006] **FIG. 4** is a cross-section view of a portion of the pedestal of **FIG. 1**;

[0007] **FIG. 5** is a front view of a portion of the pedestal of **FIG. 1**;

[0008] **FIG. 6** is a side view of a portion of the pedestal of **FIG. 1**;

[0009] **FIG. 7** is a block diagram according to the disclosure.

© 2023 Leviton Manufacturing Co., Inc.

DETAILED DESCRIPTION

[0010] The following disclosure is intended to provide exemplary embodiments of the disclosed apparatus, system, and method, and these exemplary embodiments should not be interpreted as limiting. One of ordinary skill in the art will understand that the steps and methods disclosed may easily be reordered and manipulated into many configurations, provided they are not mutually exclusive. As used herein, “a” and “an” may refer to a single or plurality of items and should not be interpreted as exclusively singular unless explicitly stated.

[0011] This disclosure is directed to a pedestal apparatus, system, and method to providing users an option to access power in and outdoors or indoor settings. Particularly in large open spaces, there may be a large amount of foot traffic and a relatively limited availability of electrical power and/or communication to meet the demand of users. Examples of such large open spaces are parks, transportation hubs (e.g., train stations, bus terminals, airports) shopping malls, and campuses. Pedestals according to the present disclosure can supply power for any suitable purposes, examples of which are laptop/phone charging, mobile kiosks, housekeeping services (e.g., vacuuming), and concessionaire stands.

[0012] In addition, pedestals according to the present disclosure can also provide network connectivity and information dissemination.

[0013] Referring now to **FIG. 1** through **FIG. 7,** a pedestal 100 is disclosed. The pedestal 100 includes a post 1000 and a housing 2000. The pedestal 100, and parts thereof, may be manufactured out of any suitable material or combination of materials such as ceramic, fiberglass. glass, masonry, metal (e.g., aluminum, steel, stainless steel), and polymer (e.g., thermoset, thermoplastic). Examples of polymers include acrylonitrile butadiene styrene (ABS), high-density polyethylene (HDPE), polycarbonate, polyethylene terephthalate (PET), polymethyl methacrylate (PMMA), polypropylene, polyurethane, and polyvinyl chloride (PVC). The pedestal 100 is mounted to a horizontal surface 3000, examples of which are the ground, pavement (e.g., concrete, brick, or masonry), or a floor.

[0014] The pedestal 100 is configured to provide charging power to a portable device 5000 through a cord 5200. The portable device 5000 includes a charging status 5100 which may be communicated to the pedestal 100, components thereof, or to a remote entity 6000. The pedestal 100 is also configured to provide an output signal 1850 via an electrical indicator 1840 to a user 7000. The pedestal 100 can also be configured to provide power to an appliance that is plugged into an electrical receptacle of the pedestal 100. In addition, the pedestal 100 can also be configured to provide lighting (e.g., area lighting, security lighting, decorative lighting).

[0015] As will be discussed in more detail below, an optional padlock 4000 could be provided to secure the housing 2000 in a closed position.

[0016] The post 1000 in the exemplary embodiment has a rectangular cross-section 1200 and includes a longitudinal axis 1350. Alternative embodiments of the post 1000 may have a cross-section of any suitable shape, examples of which are round, oval, square, triangular, trapezoidal, or a combination thereof.

[0017] The post 1000 includes a top surface 1400, a base 1450, a first side 1500, a second side 1550, a third side 1600, and a fourth side 1650. The top surface 1400, base 1450, a first, second, third, and fourth sides 1500, 1550, 1600, 1650 taken together, at least partially enclose an interior cavity 1700. The post 1000 is mounted to the horizontal surface 3000 by the base 1450. The top surface 1400 may optionally be sloped with respect to the horizontal surface 3000 upon which the pedestal 100 is mounted. By sloping the top surface 1400, any water that is deposited on the top surface 1400 will be urged to drip off the pedestal 100. In another embodiment, the top surface 1400 may be pyramidal or spiked to discourage a user 7000 from placing items on the top surface 1400 or from sitting or leaning on the top surface 1400.

[0018] The post 1000 also includes a post aperture 1750, first trunnion 1760, second trunnion 1765, control circuitry 1800, a first padlock eye 1950, and a shelf 1975.

[0019] The housing 2000 includes a cover portion 2600, a body portion 2700, and one or more wiring devices 2800. The housing 2000 is rotatable between a first (e.g., closed) position 2510 and a second (e.g., open) position 2520.

[0020] The cover portion 2600 includes a beveled portion 2605, a seal 2610, a first pivot member 2620, a second pivot member 2625, and a second padlock eye 2630. The housing 2000 is rotatably coupled to the post 1000 by engagement of the first and second pivot members 2620, 2625 with the first and second trunnions 1760, 1765, respectively (the housing 2000 rotates about a pivot axis 2627). When the housing 2000 is in the first position 2510, the housing 2000 is at least partially positioned within the interior cavity 1700 of the post 1000. When the housing 2000 is in the second position 2520, the housing 2000 is at least partially accessible to a user 7000 via the post aperture 1750. When the housing 2000 is in the second position 2520, the beveled portion 2605 of the cover portion 2600 is sloped with respect to the horizontal surface 3000 to urge any water that is deposited on the cover portion 2600 to drip off the cover portion 2600. Additionally, the cover portion 2600, as a whole, may be sloped with respect to the horizontal surface 3000 to urge any water that is deposited on the cover portion 2600 to drip off the cover portion 2600.

[0021] When in the first position 2510, there is a gap 2640 between the cover portion 2600 and the post aperture 1750 to allow a cord 5200 to pass therethrough without the cord 5200 getting pinched. Additionally, a shelf 1975 is provided on the post 1000. The combination of the gap 2640 and the shelf 1975, allows a user 7000 to connect a portable device 5000 to a cord 5200 and in turn, plug the cord 5200 into the charging port 2850. Then, the user 7000 may then rest the portable device 5000 on the shelf 1975 and move the housing 2000 to the first position 2510. Alternatively, the user 7000 may simply rest the portable device 5000 on the top surface 1400.

[0022] The body portion 2700 includes a periphery 2710, a front face 2720, and one or more wiring device apertures 2730. The periphery 2710 of the body portion 2700 is sized such that the body portion 2700 can at least partially pass through the post aperture 1750 during rotation of the housing 2000 between its first and second positions 2510, 2520. In other words, the periphery 2710 of the body portion 2700 is smaller than the post aperture 1750. In the present embodiment, when the housing 2000 is in the first position 2510, a majority of the volume 2550 of the housing 2000 is positioned within the interior cavity 1700 of the post 1000 and the front face 2720 is horizontal (e.g., parallel with the horizontal surface 3000). When the housing 2000 is in the second position 2520, a majority of the volume 2550 of the housing 2000 is positioned outside of the interior cavity 1700 of the post 1000 and the front face 2720 is vertical (e.g., perpendicular to the horizontal surface 3000). As best seen in **Fig. 4**, when the housing 2000 is in the first position 2510, if a cord 5200 is plugged into the charging port 2850, the cord 5200 will hang down from the charging port 2850 and may be routed through the gap 2640 to the exterior of the pedestal 100.

[0023] The wiring device 2800 includes a charging port 2850. The charging port 2850 is configured to provide power to charge a portable device 5000 that is plugged into the charging port 2850 via a cord 5200. In the present embodiment, the charging port 2850 is a USB Type C port. Alternative embodiments may include a different form factor of the charging port 2850 such as Type A, Type B, Type-C, Mini-A, Mini-B, Micro-A, Micro-B. Still further embodiments may include a low voltage port instead of, or in addition to, the charging port 2850. Examples of low voltage ports include Audio/Video/Multimedia, Digital Visual Interface (DVI), Ethernet/data (e.g., copper, RJ-45), High-Definition Multimedia Interface (HDMI), IEEE 1394 (FireWire), Thunderbolt, Separate Video (S-Video), Video Graphics Array (VGA), coaxial (coax; F connector), headphone cords, telephone, or any suitable combination thereof. For the purposes of this application, low voltage ports can also include fiber optic ports (although no electrical voltage is actually transmitted by fiber optic ports).

[0024] In the present embodiment, the housing 2000 is configured as a three-gang assembly. The term three-gang refers to a dimension sufficient to receive at least three electrical devices such as three duplex electrical receptacles in a side-by-side manner. Other embodiments may be configured as single-gang, two-gang, or any suitable number of gangs. The dimensions corresponding to the number of gangs are standardized in the industry, e.g., refer to NEMA Standards Publication OS 1-2003 pp. 68, Jul. 23, 2003

[0025] In some embodiments, wiring device 2800 may be a switch, electrical receptacle (e.g., an outlet which receive plug blades of an electrical plug), circuit interrupter, lighting control, fan speed control, dimmer, occupancy sensor, or HVAC equipment/controller. Examples of circuit interrupters include ground fault circuit interrupters (GFCI's), arc fault circuit interrupters (AFCI's), resettable circuit interrupting device, immersion detection circuit interrupter (IDCI's), appliance leakage circuit breaker (ALCI's), latching interrupting devices, contactor, and overcurrent devices. Additionally, any suitable combinations of these devices can be integrated into a single wiring device (e.g., a combo device such as a combo GFCI/AFCI).

[0026] When in the first position 2510, the cover portion 2600, the seal 2610, and the post aperture 1750 cooperate to at least partially prevent ingress of solids and liquids into the interior cavity 1700 of the pedestal 100.

[0027] In another embodiment no gap 2640 is provided between the cover portion 2600 and the post aperture 1750. In such an embodiment, the cover portion 2600, the seal 2610, and the post aperture 1750 cooperate to fully prevent ingress of solids and liquids into the interior cavity 1700 of the pedestal 100 (when in the first position 2510).

[0028] To prevent tampering, a user 7000 can secure the housing 2000 in the first position 2510 by attaching a padlock 4000 through the first padlock eye 1950 on the post 1000 and the second padlock eye 2630 of the cover portion 2600 of the housing 2000. Another embodiment may include padlock eyes and a padlock configured to cooperate to secure the housing 2000 in the second position 2520 as opposed to the first position 2510.

[0029] **FIG. 7** is a block diagram of an exemplary embodiment of the control circuitry 1800. Control circuitry 1800 includes a processor 1810, memory 1820, an input device 1830, an electrical indicator 1840, and a network interface 1880. Any of the elements of control circuitry 1800 can be in electrical communication with any other of the elements of the control circuitry 1800 in any suitable manner. Control circuitry 1800 could reside any suitable location of the pedestal 100 such as the post 1000, the housing 2000, or both.

[0030] Examples of the processor 1810 include any type of computing device, computational circuit, or any type of controller or processing circuit capable of executing a series of instructions that are stored in a memory. The processor 1810 may include multiple processors and/or multicore central processing units (CPUs) and may include any type of processor, such as a microprocessor, digital signal processor, microcontroller, programmable logic device (PLD), field programmable gate array (FPGA), or the like.

[0031] The memory 1820 (which may optionally be integral with the processor 1810) stores data and/or instructions that, when executed by the processor 1810, causes the processor 1810 to perform one or more methods and/or algorithms.

[0032] Memory 1820 may be a non-transitory computer readable or machine-readable storage medium, may include any tangible media capable of storing electronic data, including volatile memory or non-volatile memory, removable or non-removable memory, erasable or non-erasable memory, writeable or re-writeable memory, and so forth. Examples of computer executable instructions may include any suitable type of code, such as source code, compiled code, interpreted code, executable code, static code, dynamic code, object-oriented code, visual code, and the like. The examples are not limited in this context. The memory may be one or more memory chips capable of storing data and allowing any storage location to be directly accessed by the processor such as any type or variant of static-random-access memory (SRAM), dynamic-random-access-memory (DRAM), electrically erasable programmable read-only memory

(EEPROM), Ferroelectric RAM (FRAM), NAND Flash, NOR Flash and Solid-State Drives (SSD).

[0033] The network interface 1880 includes a transceiver 1885, a network port 1890, and an antenna 1895. The transceiver 1885 may be configured to communicate with a remote entity 6000. Examples of the network interface 1880 are a router, a gateway, an access point, a hotspot, a repeater, a signal extender, and a signal booster. The network interface 1880 may be a wired interface, a wireless interface, or a combination thereof.

[0034] Examples of the wired interface include a copper ethernet interface (local area network, LAN), a fiber interface, a Recommended Standard 232 (RS-232) interface, or a universal serial bus (USB) interface.

[0035] Examples of the wireless interface include a wireless local area network (WLAN), personal area network (PAN), near field communication (NFC), low-power mesh (e.g., Thread, Z-Wave), ultra-narrow band (Sigfox®, a trademark of UnaBiz SAS), a Low Power, Wide Area networking protocol (LoRaWAN™, a trademark of the LoRa Alliance), or cellular. An example of a WLAN is the Institute of Electrical and Electronics Engineers (IEEE) 802.11 standards (e.g., Wi-Fi®, a trademark of the Wi-Fi Alliance). Examples of PAN’s are Bluetooth® (a trademark of Bluetooth SIG, Inc.), Bluetooth® Low Energy (BLE), IPv6 over Low-Power Wireless Personal Area Networks (6LoWPAN), and Zigbee (a trademark of the Connectivity Standards Alliance). Examples of cellular networks are fourth generation (4G), long-term evolution (LTE), and fifth generation (5G) cellular networks.

[0036] Additionally, the network interface 1880 may be configured to employ any suitable network topology such as client/server, mesh, or peer-to-peer (P2P). The use of the term wireless is not intended to be limiting to exclude devices which also employ wired communication or are coupled to wires or physical conductors/conductive paths.

[0037] Examples of the remote entity 6000 are cellular phones, laptops, computers, cloud services, and the internet. The network interface 1880 may receive information 6200 from the remote entity 6000 through the transceiver 1885.

[0038] Examples of the electrical indicator 1840 include a visible indicator 1860 (e.g., a display, a touch screen), an audible indicator 1870 (e.g., speaker, buzzer, piezo), and a tactile interface. Examples of a visible indicator 1860 include displays, LED, LCD, diode array, OLED, and plasma display. The electrical indicator 1840 is configured to generate an output signal 1850, examples of which are light, colors, sound, text, graphics, and tactile outputs. The output signal 1850 may include locally available information such as the charging status 5100 of the portable device 5000, sensed environmental parameters (e.g., temperature, humidity, light levels), or inputs received by the user 7000. Additionally, output signal 1850 may include information 6200 received from a remote entity 6000 via the transceiver 1885 of the network interface 1880. Examples of such locally available information and information 6200 from a remote entity 6000 include transportation schedule information, local movie showtimes, local stores offering discounts, directional/signage information, weather information, and financial information. Such information may be predetermined based on the location. Such information may also be generated in response to an input received in the local environment or from a user 7000. Alternative embodiments may include an input device 1830 in addition to, or integrated with, the electrical indicator 1840. Examples of an input device 1830 are cameras, microphones, keyboards, mice, touch screens, biometric inputs (e.g., fingerprint, facial recognition), and touch inputs.

[0039] The features disclosed in the foregoing description, or the accompanying drawings, expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for attaining the disclosed result, as appropriate, may, separately, or in any combination of such features, be utilized for realizing the invention in diverse forms thereof.

CLAIMS

What is claimed is:

1. A pedestal comprising:

   a post;

   a network interface having a transceiver;

   a universal serial bus (USB) charging port;

   an electrical indicator in electrical communication with the network interface and the electrical charging port.

2. The pedestal of claim 1 wherein the network interface is one or more of an ethernet network interface, a wireless network interface, and a cellular network interface.

3. The pedestal of claim 1 wherein the USB charging port is a USB Type-C charging port.

4. The pedestal of claim 1 wherein the electrical indicator is one of a visible or audible indicator.

5. The pedestal of claim 1 wherein the USB charging port is configured to supply power to a portable device that is removably coupled to the USB charging port, wherein the portable device comprises a charging status; and

wherein the electrical indicator is configured to output a signal indicative of the charging status of the portable device.

6. The pedestal of claim 1 wherein the transceiver is configured to receive information from a remote entity and the electrical indicator is configured to output a signal indicative of the received information.

7. The pedestal of claim 1 wherein the post comprises a longitudinal axis and the pedestal is configured to be mounted to a horizontal surface such that the longitudinal axis is perpendicular to the horizontal surface; and

wherein the pedestal further comprises a top surface wherein the top surface is sloped with respect to the horizontal surface.

8. The pedestal of claim 1 wherein the post comprises a post aperture and the pedestal further comprises:

a housing at least partially accessible through the post aperture, the housing comprising:

a cover portion;

a wiring device aperture;

a wiring device at least partially disposed within the housing, wherein the wiring device is accessible via the wiring device aperture;

wherein the housing is rotatable between a first position and a second position, wherein:

when in the first position, the cover portion at least partially blocks the post aperture, and the housing is positioned at least partially within the post; and

when in the second position, the wiring device is accessible via the post aperture.

9. The pedestal of claim 8 wherein:

the post further comprises a trunnion; and

the housing further comprises a pivot member, wherein the pivot member is engaged with the trunnion to rotatably couple the housing to the post.

10. A pedestal comprising:

a post having a post aperture;

a housing at least partially accessible through the post aperture, the housing comprising:

a cover portion;

a wiring device aperture;

a wiring device at least partially disposed within the housing, wherein the wiring device is accessible via the wiring device aperture;

wherein the housing is rotatable between a first position and a second position, wherein:

when in the first position, the cover portion at least partially blocks the post aperture, and the housing is positioned at least partially within the post; and

when in the second position, the wiring device is accessible via the post aperture.

11. The pedestal of claim 10, wherein the wiring device is one of a universal serial bus (USB) charging port, an electrical receptacle, a duplex electrical receptacle, a switch, a lighting fixture, a ground fault circuit interrupter, an arc fault circuit interrupter, a dimmer, a communication device, a fan speed control, an occupancy sensor, an energy management device, or a surge suppressor.

12. The pedestal of claim 10, wherein:

the pedestal further comprises an interior cavity;

wherein the cover portion further comprises a seal; and wherein when in the first position, the cover portion, the seal, and the post aperture cooperate to prevent ingress of solids and liquids into the interior cavity of the pedestal.

13. The pedestal of claim 10, wherein:

wherein when in the first position, there is a gap between the cover portion and the post aperture to allow an electrical cord to pass between the post aperture and the cover portion.

14. The pedestal of claim 10, wherein:

the housing further comprises a body portion wherein the wiring device is at least partially disposed within the body portion and the body portion has a periphery; and

the cover portion projects beyond the periphery of the body portion.

15. The pedestal of claim 10 further comprising a network interface having a transceiver wherein the transceiver is configured to receive information from a remote entity.

16. The pedestal of claim 15 further comprising an electrical indicator, wherein the electrical indicator is configured to output a signal indicative of the received information.

17. The pedestal of claim 10 wherein:

the post further comprises a trunnion; and

the housing further comprises a pivot member, wherein the pivot member is engaged with the trunnion to couple the housing to the post.

PEDESTAL APPARATUS, SYSTEM, AND METHOD

ABSTRACT OF THE DISCLOSURE

A pedestal is disclosed that includes a post and a housing. The pedestal is configured to provide charging power to a portable device in addition to network connectivity and information dissemination.

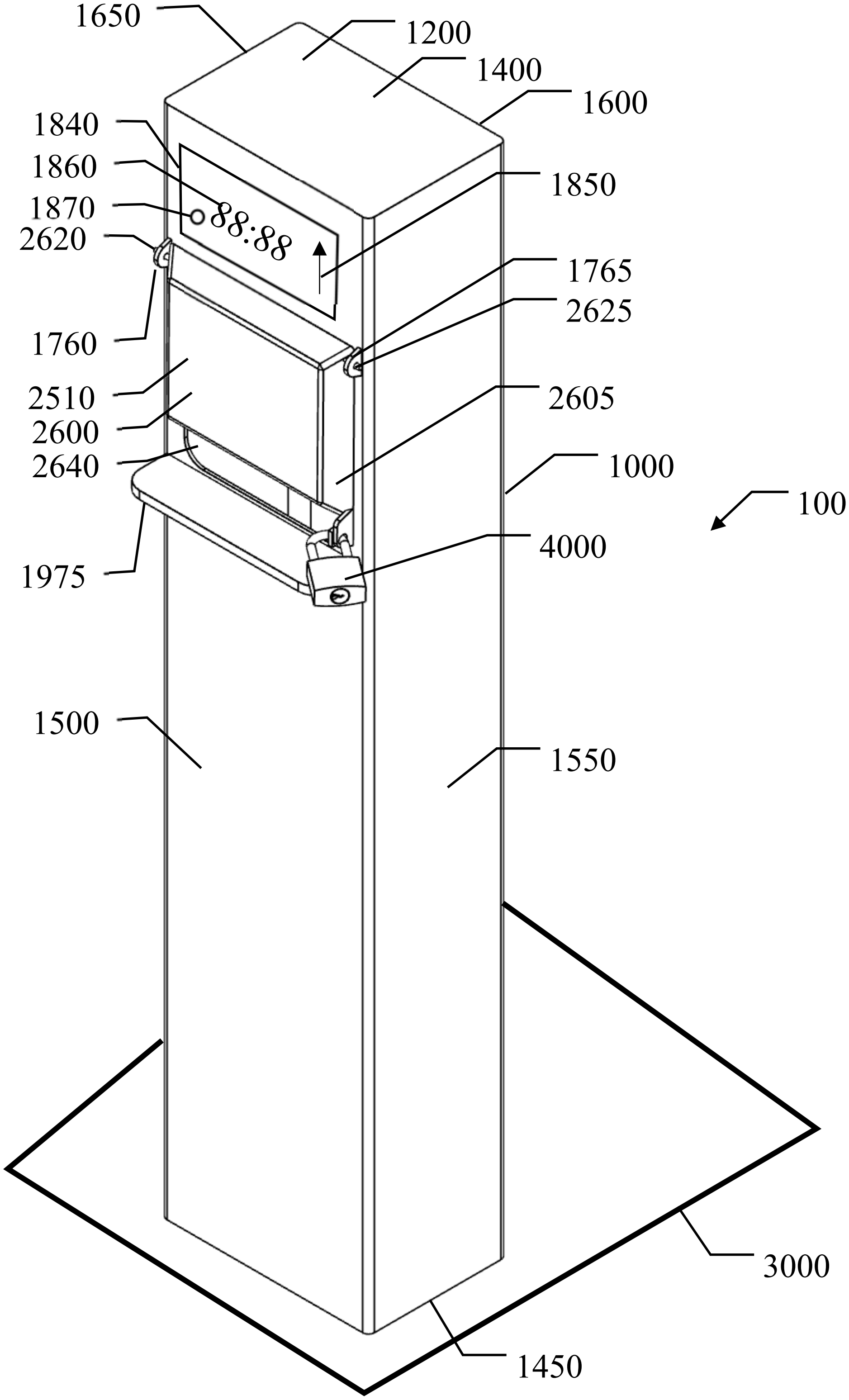
1650
1200
1400
1600
1840
1860
1870
2620
88:88
1850
1765
2625
1760
2510
2600
2640
2605
1000
100
4000
1975
1500
1550
3000
1450

FIG. 1

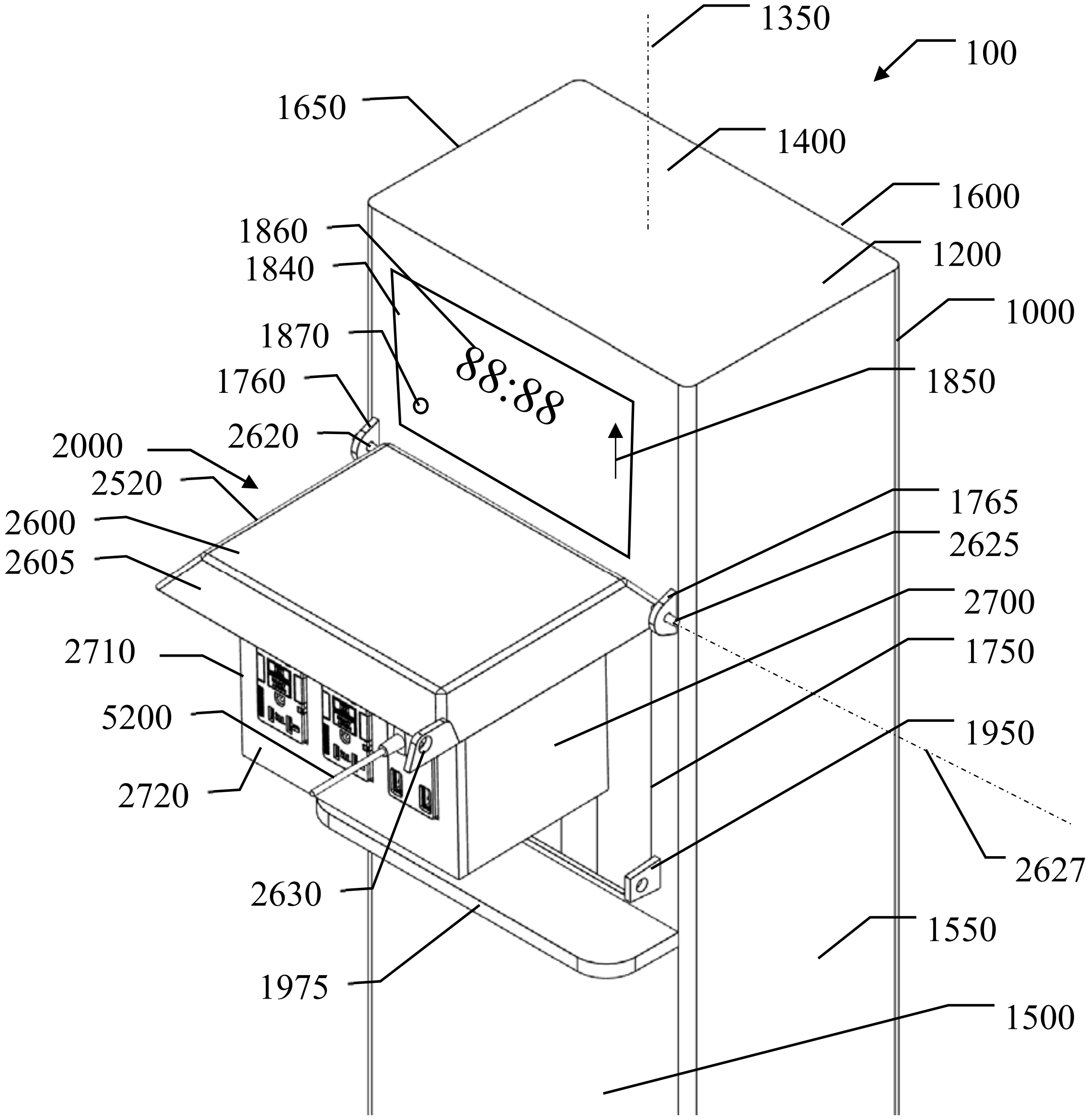
1350
100
1650
1400
1600
1200
1860
1840
1000
1870
88:88
1760
1850
2620
2000
2520
1765
2600
2625
2605
2700
2710
1750
5200
1950
2720
2627
2630
1550
1975
1500

FIG. 2

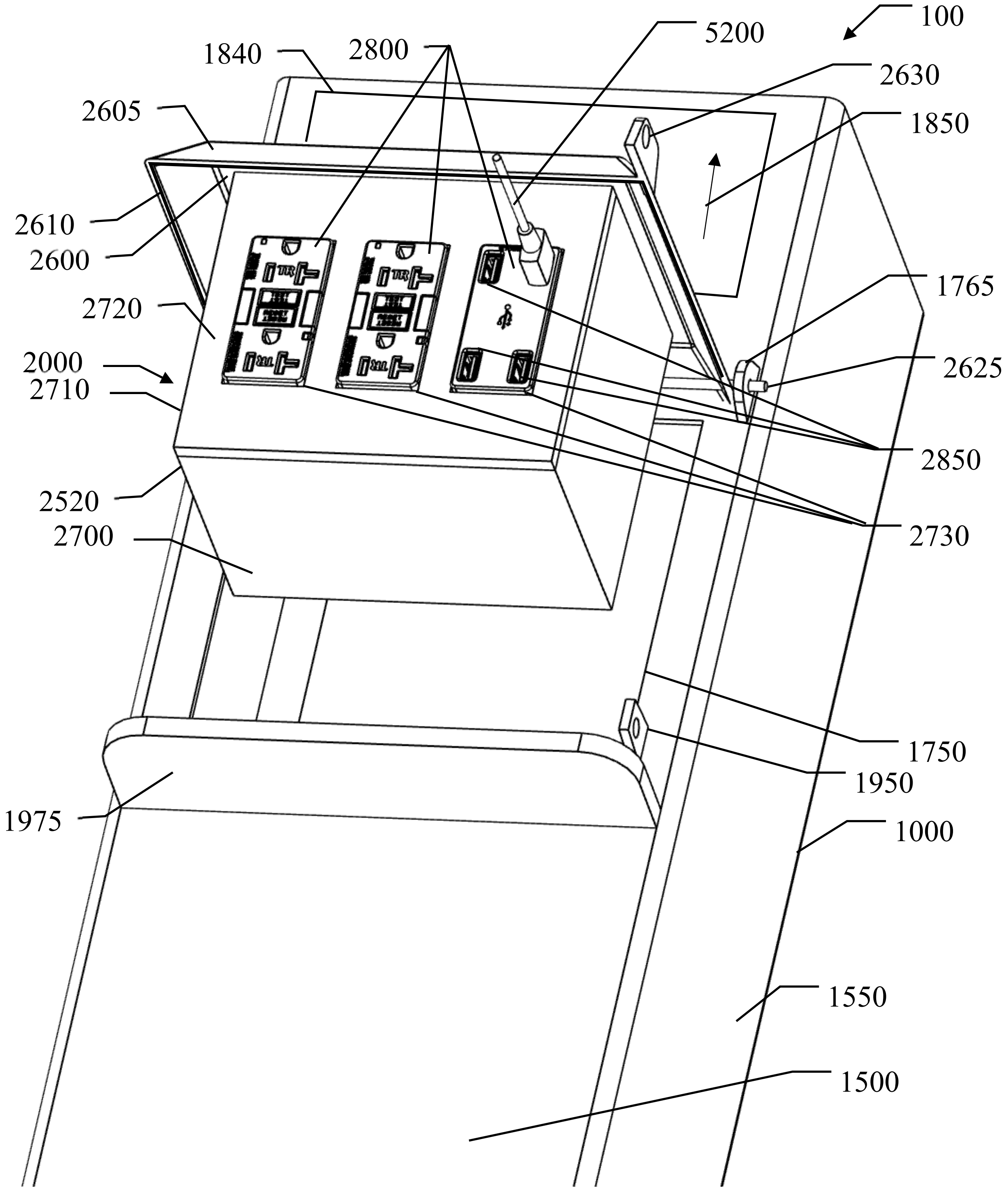
1840
1850
1765
2000
1750
1950
1975
1550
1500

FIG. 3

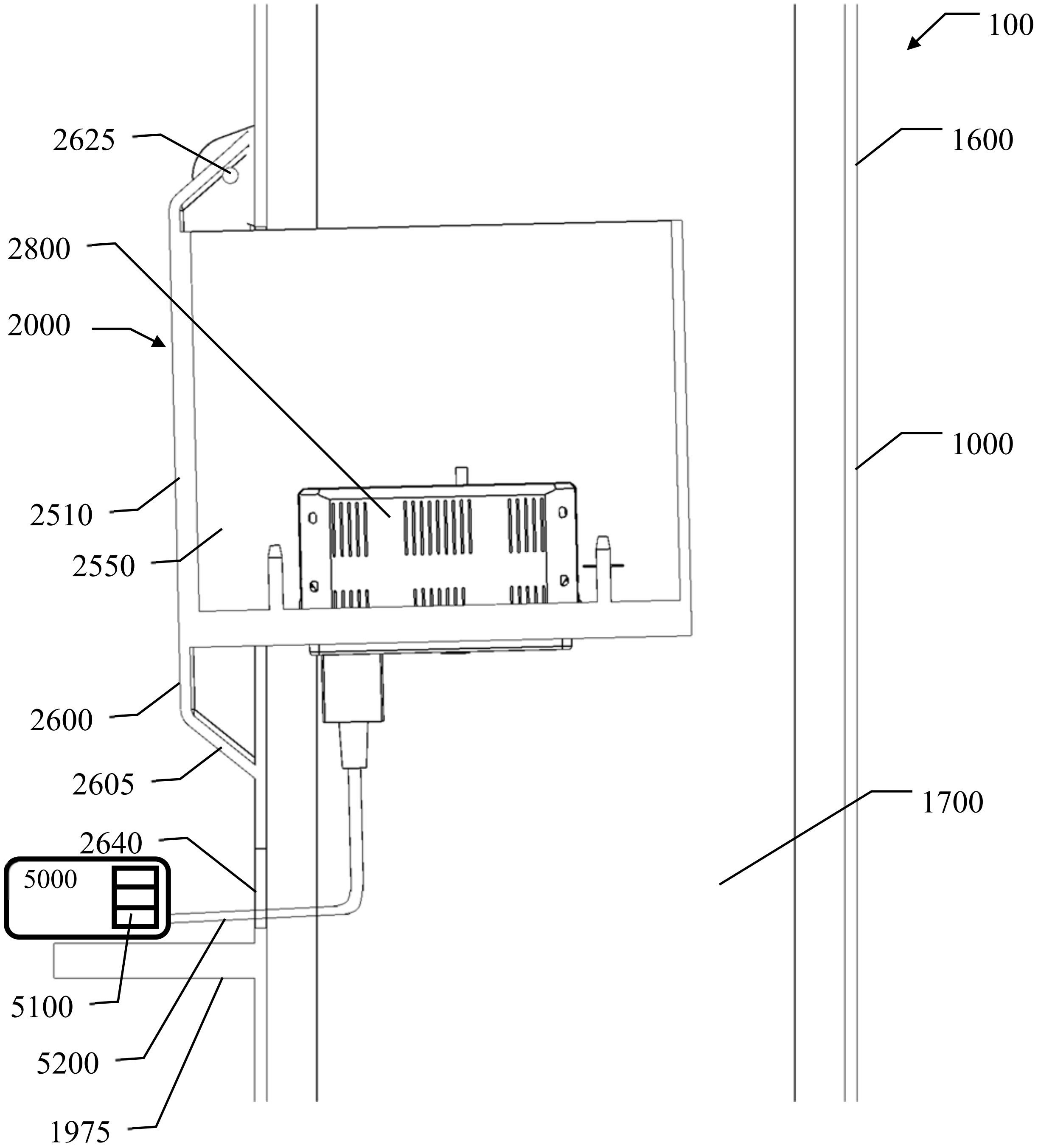
1600
2000
1700
1975

FIG. 4

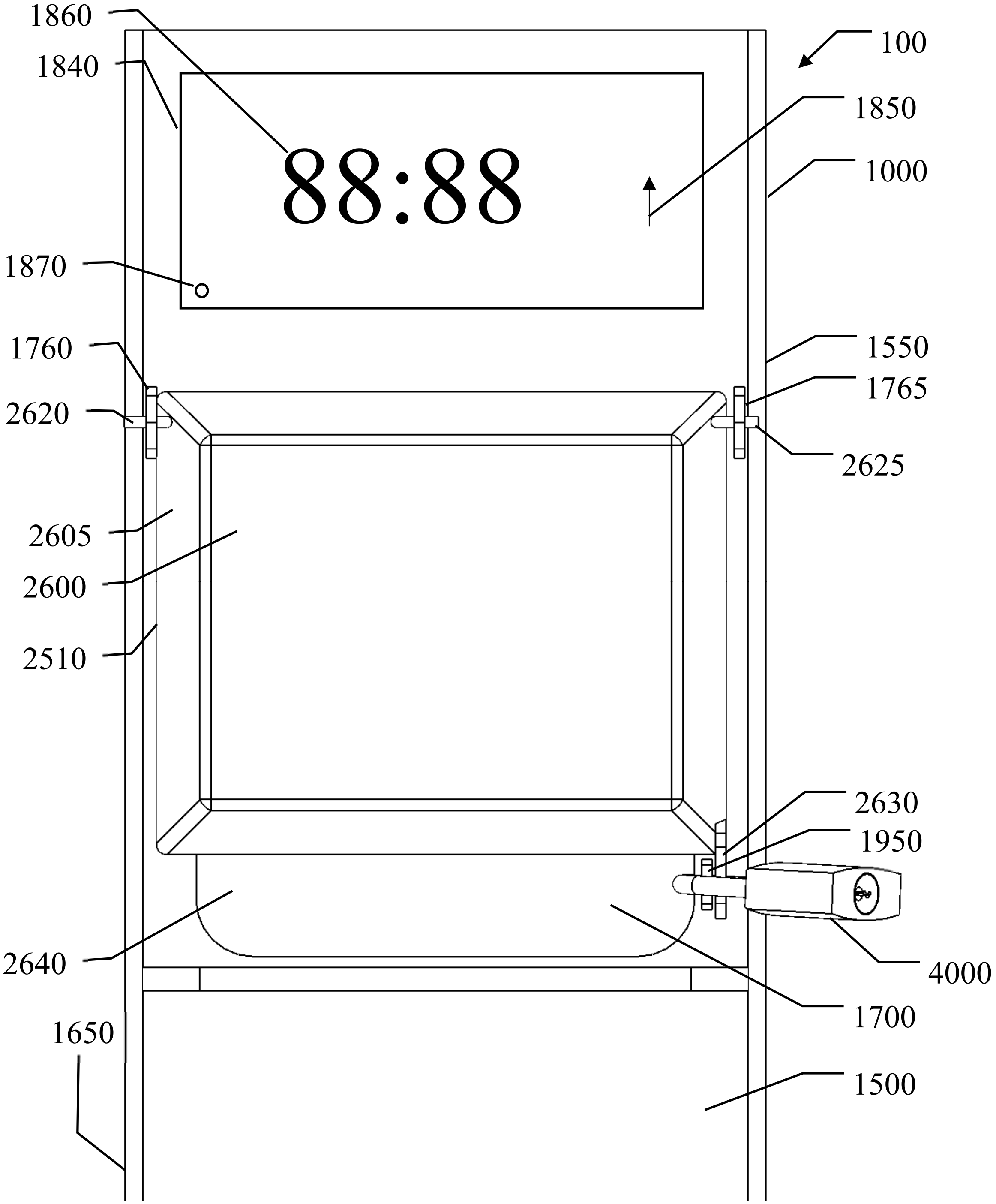
1860
1840
100
1850
1000
88:88
1870
1760
1550
1765
2620
2625
2605
2600
2510
2630
1950
2640
4000
1700
1650
1500

FIG. 5

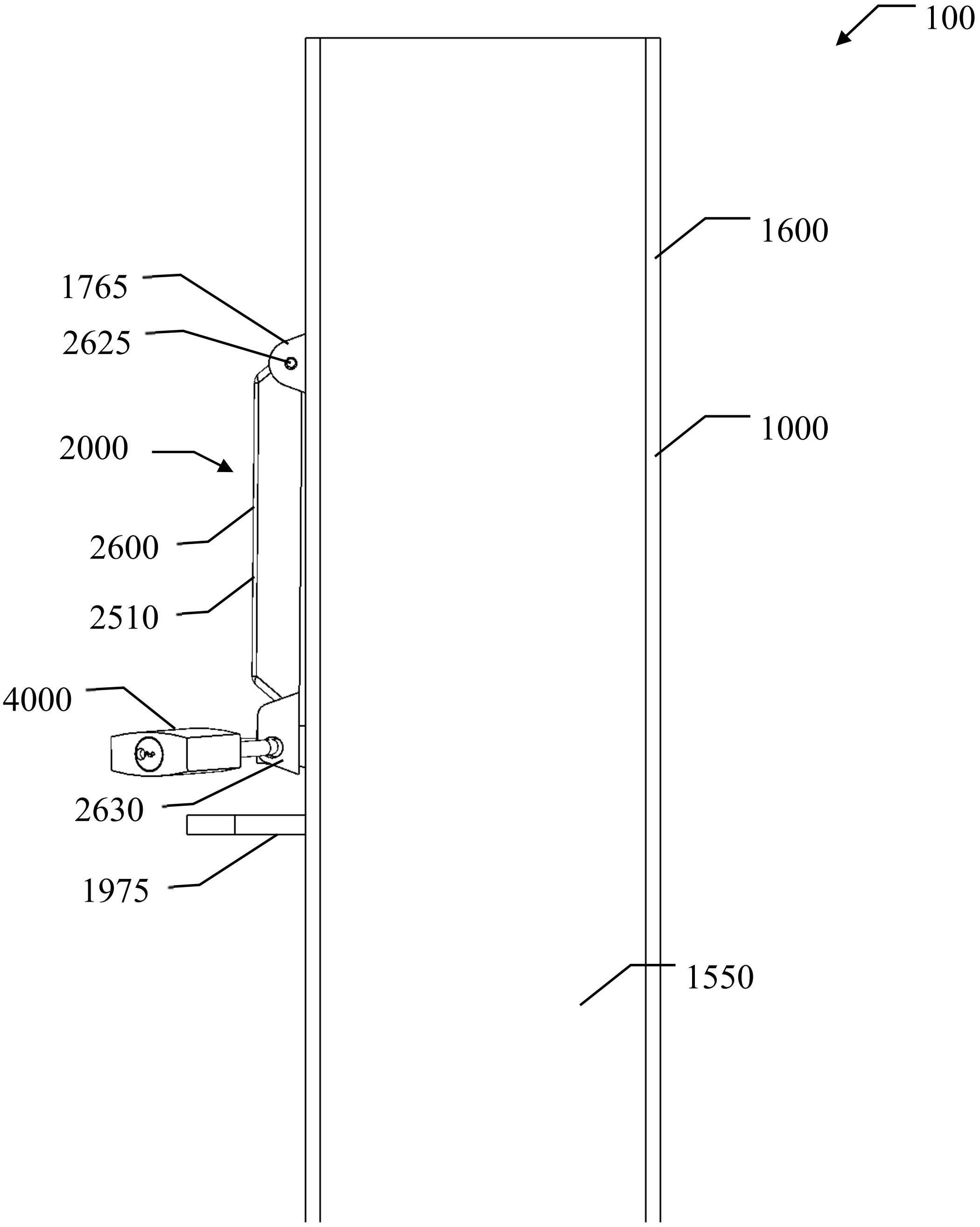

FIG. 6

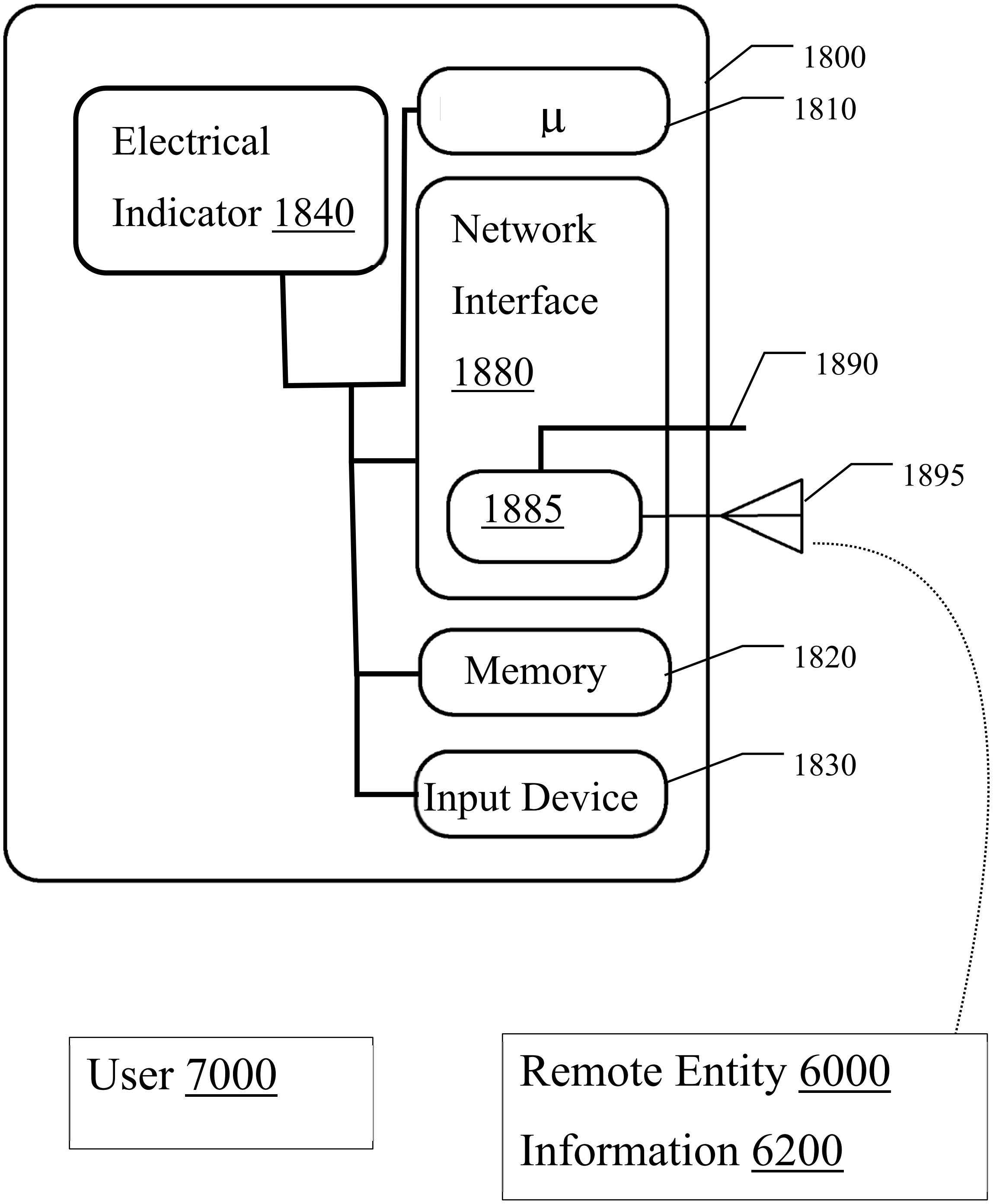
Electrical
Indicator 1840
μ
Network
Interface
1880
1885
Memory
Input Device
1800
1810
1890
1895
1820
1830
User 7000
Remote Entity 6000
Information 6200

FIG. 7